

## LEED Commissioning Comparison BCA Expo, Long Island 2008

### E&A Optional Credits

	NC	EB	CI
<b>Activities</b>	<p>Independent CxA NC C3</p> <ul style="list-style-type: none"> <li>• Cx review of OPR, BOD and design prior to mid-CDs and back check in subsequent submission</li> <li>• Cx review of contractor submittals against OPR and BOD</li> <li>• Provide systems manual</li> <li>• Verify training of operating personnel</li> <li>• Near-warranty / post-occupancy review with O&amp;M staff</li> </ul>	<p>Independent CxA EB C2.1</p> <p>Option A: Commissioning Process</p> <ul style="list-style-type: none"> <li>▪ Develop Ongoing Cx Plan</li> <li>▪ Conduct the investigation and analysis</li> <li>▪ Document Breakdown of energy usage</li> <li>▪ List operating problems that affect comfort and energy usage <ul style="list-style-type: none"> <li>▪ Operational changes to solve</li> </ul> </li> <li>▪ List of capital improvements for energy savings <ul style="list-style-type: none"> <li>▪ Cost-Benefit analysis for each</li> </ul> </li> </ul> <p>Option B: ASHRAE Level II, Energy Audit</p> <ul style="list-style-type: none"> <li>▪ Conduct energy audit that meets ASHRAE level II</li> <li>▪ Document Breakdown of energy usage</li> <li>▪ Perform savings and cost analysis of all practical measures that meet owner's constraints and economic criteria <ul style="list-style-type: none"> <li>▪ Discussion of affect on O&amp;M procedures</li> </ul> </li> <li>▪ List of capital improvements for energy savings <ul style="list-style-type: none"> <li>▪ Cost-Benefit analysis for each</li> </ul> </li> </ul>	<p>Independent CxA CI C2</p> <ul style="list-style-type: none"> <li>• Cx review of DD documents</li> <li>• Cx review of CDs</li> <li>• Cx review of contractor submittals</li> <li>• Provide systems manual</li> <li>• Verify training of operating personnel</li> <li>• Near-warranty / post-occupancy review with O&amp;M staff</li> </ul>
<b>Submittals</b>	<p>Req'd Submissions NC C3</p> <ul style="list-style-type: none"> <li>• Provide the name and company information for the CxA</li> <li>• Confirm that the 6 required tasks have been completed</li> <li>• Narrative description of the results of the design review, implementation of the systems manual and training, and the plan for the review of building operation at 8 to 10 months.</li> </ul>	<p>Required Submissions EB C2.1</p> <ul style="list-style-type: none"> <li>▪ Declarant has to be property manager or facility manager</li> <li>▪ Provide performance period dates</li> </ul> <p>Option 1</p> <ul style="list-style-type: none"> <li>▪ Provide copy of Plan</li> <li>▪ Written summary of findings</li> </ul> <p>Option 2</p> <ul style="list-style-type: none"> <li>▪ Provide summary report of findings from Level II audit</li> <li>▪ Describe any M&amp;V methods that will be required to determine the actual effectiveness of the selected measures</li> </ul>	<p>Required Submissions CI C2</p> <ul style="list-style-type: none"> <li>• Confirm design and submittal review have been successfully completed</li> <li>• Rest of requirements can be under contract or confirm their successful completion.</li> </ul>
		<p>Independent CxA EB C2.2</p> <ul style="list-style-type: none"> <li>• Implement no or low cost operational improvements and create capital plan for major retrofits or upgrades</li> </ul>	

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		<ul style="list-style-type: none"> <li>• Training for management staff: sustainable building operation topics; energy efficiency; building, equipment and systems operation/ maintenance</li> <li>• Demonstrate observed and/or anticipated financial cost and benefits</li> <li>• Update the building operating plan</li> </ul>	
		<p>Required Submissions EB C2.2</p> <ul style="list-style-type: none"> <li>▪ Declarant has to be property manager or facility manager</li> <li>▪ Provide performance period dates</li> <li>▪ List of all no or low-cost operational improvements</li> <li>▪ Provide a copy or summary of the capital plan for major retrofits or upgrades that improve energy efficiency and/or improve operational reliability and consistency</li> <li>▪ Summarize significant updates to the building operation plan</li> <li>▪ Staff training program</li> </ul>	
		<p>Independent CxA EB C2.3</p> <ul style="list-style-type: none"> <li>• Implement an ongoing Cx program</li> <li>• Create a written plan that summarizes the overall Cx cycle(max 24 mos)</li> <li>• Complete at least half the scope of work in the 1<sup>st</sup> Cx cycle (according to % or plan's total budget) prior to the date of application for certification.</li> <li>• Update the building operating plan and/or systems narrative as necessary to reflect any operational changes</li> </ul>	
		<p>Required Submissions EB C2.3</p> <ul style="list-style-type: none"> <li>▪ Declarant must be property manager or facility manager</li> <li>▪ Provide performance period dates</li> <li>▪ Submit the Cx Plan and results of the investigation and analysis phase and/or report that complies with the intent of ASHRAE level II, energy survey and analysis.</li> <li>▪ Provide Overall Cx plan</li> <li>▪ Narrative report of all Cx tasks</li> <li>▪ Summarize significant updates to the building operation plan</li> </ul>	